

US EPA ARCHIVE DOCUMENT

DP Barcode(s): D198368

ENVIRONMENTAL FATE AND GROUND WATER BRANCH

Review Action

To: Robert Taylor, PM #25
Reregistration Division (7505C)

From: Elizabeth Behl, Section Head
Ground Water Technology Section
Environmental Fate & Ground Water Branch/EFED 75070

Thru: Henry Jacoby, Chief
Environmental Fate & Ground Water Branch/EFED (7507C)

Attached, please find the EFGWB review of...

Common Name:	Metribuzin	Trade name:	Sencor
Company Name:	Miles, Inc.		
ID #:	003125-00325		
Purpose:	Review request from State of Florida to amend ground-water label advisory for metribuzin.		

Type Product:	Action Code:	EFGWB #(s):	Review Time:
Herbicide	300		1 day

STATUS OF STUDIES IN THIS PACKAGE: REQUIREMENTS

[illegible]

STATUS OF DATA

ADDRESSED IN THIS PACKAGE:

[illegible]

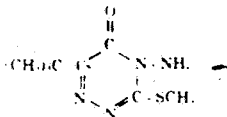
1. CHEMICAL:

Chemical name: 4-amino-6-(1,1-dimethylethyl)-3-(methylthio)-1,2,4-triazin-5(4H)-one

Common name: Metribuzin

Trade name(s): Sencor

Structure:



2. TEST MATERIAL:

Not Applicable.

3. STUDY/ACTION TYPE:

Review request from State of Florida to amend ground-water label advisory for metribuzin.

4. STUDY IDENTIFICATION:

- Title:
- 1) Letter from Elizabeth Braxton (Administrator, Pesticide Compliance Section, Florida Department of Agriculture and Consumer Affairs) to Cheryl Prinster (EPA, Florida Project Officer), September 2, 1993
 - 2) Letter from Jewell Grubbs (EPA Region 4, Pesticides Section) to Ed Allen (EPA Registration Branch), December 21, 1993

Identifying No.: 003125-00325

Date Sent to EFED: 1/18/94

Submitted for: Florida Department of Agriculture and Consumer Affairs
Bureau of Pesticides
3125 Conner Boulevard MC-1
Tallahassee, FL 32399-1650

5. REVIEWED BY:

Estella Waldman
Hydrologist

Signature:

OPP/EFED/EFGBW/Ground Water Section

Date: 6/29/94

6. APPROVED BY:

Elizabeth Behl
Section Head

Signature:

OPP/EFED/EFGBW/Ground Water Section

Date:

8-14-94

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460



OFFICE OF PREVENTION,
PESTICIDES AND TOXIC
SUBSTANCES

MEMORANDUM

RE: Ground-Water Label Advisory for Metribuzin

FROM: Estella Waldman, Hydrologist
Ground Water Technology Section *Estella Waldman*
Environmental Fate and Ground Water Branch (7507C)

Elizabeth Behl, Chief
Ground Water Technology Section *EBehl*
Environmental Fate and Ground Water Branch (7507C)

THRU: Henry Jacoby, Chief
Environmental Fate and Ground Water Branch
Environmental Fate and Effects Division (7507C)

TO: Robert Taylor, Product Manager #25
Registration Division (7505C)

Background

A letter from the Florida Department of Agriculture and Consumer Affairs (FDACS) was submitted to the Environmental Protection Agency regarding the metribuzin ground-water label advisory which was stated to be unenforceable. FDACS requested that revisions be made to ensure that the label is "enforceable and that the meaning is clearly understandable." The request was connected to the report issued following the misuse of metribuzin on a Florida golf course. In this report, the author stated that the product's label did not clarify or define the advisory for ground water.

The ground-water advisory statement has been developed for chemicals which are known to leach to ground water (metribuzin, for example) or for those chemicals which exhibit certain persistence and mobility characteristics indicating the potential to leach to ground water. The advisory statement is the mildest form of regulatory action available to the Agency, and is specifically designed to alert the user to a potential ground- water problem. The statement is

not designed to be enforceable since further regulatory action, if needed, will accomplish this goal. In the case of metribuzin, this additional regulation will be accomplished with the release of the Registration Eligibility Document.

Recommendations

One option available to the State of Florida is to develop state label restrictions that they consider appropriate for this chemical. The pesticide regulatory authorities in the state could restrict the use of metribuzin in areas they consider vulnerable to contamination. Specific soil types or depths to ground water could be defined to ensure the protection of ground-water resources. In this way, any restrictions on the Florida label would be made enforceable by state authorities.

Environmental Fate & Effects Division
PESTICIDE ENVIRONMENTAL FATE ONE LINE SUMMARY
METRIBUZIN

Last Update on March 11, 1994

[V] = Validated Study [S] = Supplemental Study [U] = USDA Data

LOGOUT	Reviewer: <i>EW</i>	Section Head:	Date:
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Common Name: METRIBUZIN

Smiles Code: S(C)C(=NN=C1C(C)(C)C)N(N)C1=O

PC Code # : 101101

CAS #: 21087-64-9

Caswell #:

Chem. Name : 4-AMINO-6-tert-BUTYL-3-(METHYLTHIO)-as-TRIZIN-5(4H)-ONE

Action Type: Herbicide

Trade Names: BAY 94337; LEXONE; SENCOR

(Formul'tn): WP, FLOWABLE CONC., DRY FLOWABLE CONC.,

Physical State:

Use : BROADLEAF WEEDS AND GRASSES IN SOYBEANS, POTATOES, BARLEY,
Patterns : WINTER WHEAT, ASPARAGUS, SUGARCANE, TOMATOES, LENTILS, PEAS,
(% Usage) : AND NONCROPLAND
:

Empirical Form: $C_8H_{14}N_4OS$

Molecular Wgt.: 214.29

Vapor Pressure: $1.20E-7$ Torr

Melting Point : °C

Boiling Point: °C

Log Kow : 1.60

pKa: @ °C

Henry's : $3.50E-11$ Atm. M3/Mol (Measured)

$3.08E-11$ (calc'd)

Solubility in ...

Comments

Water	1.10E	3	ppm	@20.0	°C
Acetone	E		ppm	@	°C
Acetonitrile	E		ppm	@	°C
Benzene	E		ppm	@	°C
Chloroform	E		ppm	@	°C
Ethanol	E		ppm	@	°C
Methanol	E		ppm	@	°C
Toluene	E		ppm	@	°C
Xylene	E		ppm	@	°C
	E		ppm	@	°C
	E		ppm	@	°C

Hydrolysis (161-1)

[V] pH 5.0: STABLE AT pH 5

[] pH 7.0: STABLE AT pH 7

[] pH 9.0: STABLE AT pH 9

[] pH :

[] pH :

[] pH :

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Photolysis (161-2, -3, -4)

[V] Water: 4.3 H. AFTER 6 H OF IRR., METRIBUZIN=33 % OF DOSE.
[] :DEGRADATE DEAMINATED METRIBUZIN (DA) WAS 55 % OF DOSE.
[] :NO DEGRADATION WAS OBSERVED IN DARK CONTROLS.
[] :

[V] Soil :2.5 DAYS ON SD LM SOIL. METRIBUZIN WAS 48 % OF DOSE AT 4
[] Air :DAYS IN IRRAD. AND 96 % IN DARK CONTROL. DEG-SEE DEG. SEC.

Aerobic Soil Metabolism (162-1)

[U] 40 days
[V] 106 DAYS IN SD LM SOIL. TWO MAJOR DEGRADATES, DIKETO
[] METRIBUZIN (DK), DEAMINATED DIKETO METRIBUZIN (DADK).
[] MINOR DEGRADATES WERE DA, 2-METHYL DADK, 4-METHYL DK, AND
[] 3-AMINO DA.
[]
[]

Anaerobic Soil Metabolism (162-2)

[V] 112 DAYS IN SD LM SOIL. THE DEGRADATES IDENTIFIED WERE
[] DADK, DA, DK, AND 2-METHYL DADK.
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Anaerobic Aquatic Metabolism (162-3)

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Aerobic Aquatic Metabolism (162-4)

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Soil Partition Coefficient (Kd UNAGED) (163-1)

	TEXTURE	Sd	Si	Cl	%OM	pH	CEC	Kdads	Kddes	Koc
[V]	SAND	88	7	5	1.0	4.3	6	0.25	0.56	47-106
[]	SD LM	56	30	14	1.1	6.6	10	0.02	0.14	3-24
[]	SI LM	17	66	17	2.9	5.9	26	0.22	0.51	15-33
[]	CL LM	21	50	29	2.2	6.4	21	0.20	0.41	17-36
[]	SEE AGED COLUMN LEACHING BELOW									

Soil Rf Factors (163-1)

	STATE	TEXTURE	%OM	pH	CEC	P.D.	% IN LEACHATE
[V]	KS	SD LM	2.4	5.2	22	2.6	24
[]	KS	SI CL	2.1	6.7	29	2.6	34
[]	KS	SI LM	2.7	6.4	21	2.6	16
[]	CA	SD LM	1.2	5.4	12	2.6	48
[]	METRIBUZIN WAS ONLY SLIGHTLY DEGRADED AFTER 30 DAYS AGING.						

Laboratory Volatility (163-2)

[]
[]

Field Volatility (163-3)

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Terrestrial Field Dissipation (164-1)

[V] 128 AND 40 DAYS IN SD LM AT WATSONVILLE AND FRESNO, CA
[] NO LEACHING OF METRIBUZIN, DA, DK, OR DADK BELOW 12 INCHES.
[S] 58-107 DAYS IN SI CL LM, MUCK SD LM, MUCK CL LM, AND SD CL
[] LM SOILS IN MI, ME, AND CA.
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Aquatic Dissipation (164-2)

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Forestry Dissipation (164-3)

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Long-Term Soil Dissipation (164-5)

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[]

Accumulation in Rotational Crops, Confined (165-1)

[S] RESIDUES ACCUMULATED IN PEANUTS THAT WERE PLANTED
IN SdLm 246 DAYS AFTER APPL. OF 1 LB AIA. ****SEE 165-3****

Accumulation in Rotational Crops, Field (165-2)

[]
[]

Accumulation in Irrigated Crops (165-3)

[S] DADK AND METRIBUZIN WERE ONLY SIGNIF. DETECTIONS IN KALE,
[] BEETS, AND WHEAT. DADK ACCUMULATED IN KALE AT 5X SOIL CONC.

Bioaccumulation in Fish (165-4)

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Bioaccumulation in Non-Target Organisms (165-5)

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Ground Water Monitoring, Prospective (166-1)

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Ground Water Monitoring, Small Scale Retrospective (166-2)

[] Protocol approved on 4/14/88. Final report results: up to 1.4 ppb
[] metribuzin and 6.7 ppb total metribuzin residues in ground water
[] more than two years after a metribuzin application.
[]

Ground Water Monitoring, Large Scale Retrospective (166-3)

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Ground Water Monitoring, Miscellaneous Data (158.75)

[] Metribuzin has been detected in 12 states at concentrations
[] ranging up to 25.10 µg/l (ppb).
[]

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Field Runoff (167-1)

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Surface Water Monitoring (167-2)

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Spray Drift, Droplet Spectrum (201-1)

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Spray Drift, Field Evaluation (202-1)

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Degradation Products

N-glucoside of 6-T-butyl-1,2,4-triazin-3,5(2H,4H)-dione (.047ppm)
6-t-butyl-3(methylthio)-1,2,4-triazin-5(4H)-~~one~~ (.014 ppm)
4-amino-6-t-butyl-1,2,4-triazin-3,5(2H,4H)-~~dione~~ (.005 ppm)
Concentrations shown represent data from organosoluble degradates
in soil at 393 days posttreatment

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Comments

Soil Koc = 41.

References:

Writer : PJH, EB, JAB, EW